AMENDMENTS TO THE CLAIMS

Claims 1-24 (Cancelled)

25. (New) A semiconductor device comprising:

a buried layer having a first conductivity type;

an epitaxial region formed on the buried layer, the epitaxial region having a surface and including:

a first region of a first conductivity type that contacts the buried region and the surface, and

a second region of a second conductivity type that contacts the surface and the first region, the second region including all contiguous regions that have the second conductivity type, no region of a first conductivity type being enclosed between the second region and the surface;

a first conductor formed on the surface to make an electrical connection with the first region; and

a second conductor formed on the surface, the second conductor contacting the second region, and being spaced apart from the first conductor.

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26. (New) The semiconductor device of claim 25 wherein the second conductor includes a layer of metal silicide.

27. (New) The semiconductor device of claim 26 wherein the second conductor includes a layer of polysilicon having the second conductivity type contacting the layer of metal silicide and the second region.

28. (New) The semiconductor device of claim 26 wherein the first conductor has the first conductivity type and a dopant concentration.

29. (New) The semiconductor device of claim 28 wherein the first conductor includes a layer of polysilicon contacting the surface.

30. (New) The semiconductor device of claim 29 wherein the first conductor includes a metal silicide layer of material contacting the layer of polysilcion.

31. (New) The semiconductor device of claim 26 wherein the second conductor has a first end and a second end, and where the first end is substantially higher than the second end.

32. (New) The semiconductor device of claim 26 wherein a portion of the second conductor vertically overlies and is isolated from the first conductor.

33. (New) The semiconductor device of claim 26 and further comprising a third conductor that contacts the surface between and spaced apart from the first and second conductors.

34. (New) The semiconductor device of claim 33 wherein the third conductor has the first conductivity type and a dopant concentration.

35. (New) The semiconductor device of claim 34 wherein the third conductor includes a layer of polysilicon contacting the surface.

36. (New) The semiconductor device of claim 35 wherein the third conductor includes a layer of metal silicide.

37. (New) The semiconductor device of claim 33 wherein a portion of the third conductor lies vertically over the first and second conductors.

38. (New) The semiconductor device of claim 33 wherein the third conductor lies vertically under the first and second conductors.

39. (New) A semiconductor device comprising:

a semiconductor material having a surface and including:

a first region of a first conductivity type that contacts the surface, and

a second region of a second conductivity type that contacts the surface and the first region, the second region including all contiguous regions that have the second conductivity type, no region of a first conductivity type being enclosed between the second region and the surface, the first region including a third region that lies vertically below all of the second region, has the first conductivity type, and has a substantially uniform dopant concentration, and

a first conductor formed on the surface to make an electrical connection with the first region, the first conductor having the first conductivity type and a dopant concentration, the dopant concentration of the third region and the dopant concentration of the first conductor being substantially equal; and

a second conductor formed on the surface, the second conductor contacting the second region, having the second conductivity type, and being spaced apart from the first conductor.

40. (New) The semiconductor device of claim 39 wherein the second conductor includes a layer of metal silicide.

41. (New) The semiconductor device of claim 40 wherein the second conductor includes a layer of polysilicon contacting the layer of metal silicide and the second region.

42. (New) The semiconductor device of claim 40 wherein the first conductor includes a layer of polysilicon contacting the surface.

43. (New) The semiconductor device of claim 42 wherein the first conductor includes a metal silicide layer of material that contacts the layer of polysilicon.

44. (New) The semiconductor device of claim 39 wherein the second conductor has a first end and a second end, and where the first end is substantially higher than the second end.

45. (New) The semiconductor device of claim 39 wherein a portion of the second conductor vertically overlies and is isolated from the first conductor.

46. (New) The semiconductor device of claim 39 and further comprising a third conductor that contacts the surface between and isolated from the first and second conductors.

47. (New) The semiconductor device of claim 46 wherein the third conductor has the first conductivity type and a dopant concentration.

48. (New) The semiconductor device of claim 47 wherein the third conductor includes a layer of polysilicon contacting the surface.

49. (New) The semiconductor device of claim 48 wherein the third conductor includes a layer of metal silicide.

50. (New) The semiconductor device of claim 46 wherein a portion of the third conductor lies vertically over the first and second conductors.

51. (New) The semiconductor device of claim 46 wherein the third conductor lies vertically under the first and second conductors.

52. (New) A method of operating a semiconductor device, the semiconductor device comprising:

a buried layer having a first conductivity type;

an epitaxial region formed on the buried layer, the epitaxial region having a surface and including:

a first region of a first conductivity type that contacts the buried region and the surface, and

a second region of a second conductivity type that contacts the surface and the first region, the second region including all contiguous regions that have the second conductivity type, no region of a first conductivity type being enclosed between the second region and the surface;

a first conductor formed on the surface to make an electrical connection with the first region; and

a second conductor formed on the surface, the second conductor contacting the second region, having the second conductivity type, including a layer of metal silicide, and being spaced apart from the first conductor;

the method comprising the steps of:

applying a first voltage to the first conductor; and

applying a second voltage to the second conductor, the first and second voltages causing a reverse breakdown of a junction between the first region and the second region such that metal atoms from the layer of metal silicide migrate to form a metallic path through the junction.

53. (New) The method of claim 52 wherein the metallic path extends from the first conductor to the second conductor.

54. (New) The method of claim 53 wherein the first conductor includes a layer of metal silicide.

55. (New) The method of claim 52 and further comprising a third conductor that contacts the surface between and spaced apart from the first and second conductors.

56. (New) A method of operating a semiconductor device, the semiconductor device comprising:

a semiconductor material having a surface and including:

a first region of a first conductivity type that contacts the surface, and

a second region of a second conductivity type that contacts the surface and the first region, the second region including all contiguous regions that have the second conductivity type, no region of a first conductivity type being enclosed between the second region and the surface, the first region including a third region that lies vertically below all of the second region, has the first conductivity type, and has a substantially uniform dopant concentration, and

a first conductor formed on the surface to make an electrical connection with the first region, the first conductor having the first conductivity type and a dopant

concentration, the dopant concentration of the third region and the dopant concentration of the first conductor being substantially equal; and

a second conductor formed on the surface, the second conductor contacting the second region, having the second conductivity type, including a layer of metal silicide, and being spaced apart from the first conductor;

the method comprising the steps of:

applying a first voltage to the first conductor; and

applying a second voltage to the second conductor, the first and second voltages causing a reverse breakdown of a junction between the first region and the second region such that metal atoms from the layer of metal silicide migrate to form a metallic path through the junction.

57. (New) The method of claim 56 wherein the metallic path extends from the first conductor to the second conductor.

58. (New) The method of claim 57 wherein the first conductor includes a layer of metal silicide.

59. (New) The method of claim 56 and further comprising a third conductor that contacts the surface between and spaced apart from the first and second conductors.